

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): Internal combustion engine with at least one cylinder, in which a fuel/air mixture can be compressed in the cylinder by a piston, ~~characterized in that~~ wherein the temperature of the fuel/air mixture in the combustion chamber can be brought to at least over 80% and up to at most 98% of the spontaneous ignition temperature of the fuel/air mixture and the ignition of the combustion is time-controlled through the introduction of laser light into the combustion chamber.

Claim 2 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein the temperature of the fuel/air mixture in the combustion chamber can be brought to at least over 85%, preferably over 87%, of the spontaneous ignition temperature of the fuel/ignition mixture.

Claim 3 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein the temperature of the fuel/air mixture in the combustion chamber can be brought to at most 95%, preferably at most 93%, of the spontaneous ignition temperature of the fuel/air mixture.

Claim 4 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the mixture is formed outside the combustion chamber.

Claim 5 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the mixture is formed in the combustion chamber.

Claim 6 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the mixture is formed during the induction stroke.

Claim 7 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the fuel/air mixture in the combustion chamber is at least  
in parts homogeneous.

Claim 8 (currently amended): Internal combustion engine according to claim 7,  
~~characterized in that~~ wherein the air/fuel ratio in the whole combustion chamber is  
approximately constant.

Claim 9 (currently amended): Internal combustion engine according to claim 7,  
~~characterized in that~~ wherein the air/fuel ratio is smaller in an area around the source of  
ignition than in the remainder of the combustion chamber.

Claim 10 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the air/fuel ratio is greater than 1.5.

Claim 11 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the air/fuel ratio is greater than 1.8.

Claim 12 (currently amended): Internal combustion engine according claim 1,  
~~characterized in that~~ wherein the geometric compression ratio is greater than 14.

Claim 13 (currently amended): Internal combustion engine according claim 1,  
~~characterized in that~~ wherein the geometric compression ratio is greater than 16.

Claim 14 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the engine has at least one laser light source, at least one  
optical transmission apparatus and at least one coupling optic for the focussing of the  
laser light into the combustion chamber, onto at least one focus.

Claim 15 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein each cylinder has an antechamber-less main combustion  
chamber with inlet and outlet valves and at least one focus of the laser light lies in the  
main combustion chamber.

Claim 16 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the engine is a stationary engine.

Claim 17 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the laser light source has a solid-state laser.

Claim 18 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the solid-state laser is diode laser-pumped.

Claim 19 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the solid-state is at least one of the group consisting of a  
Yb laser, a Nd laser and a Nd/YAG laser.

Claim 20 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the laser light source comprises at least one laser diode  
the light of which enters the combustion chamber via a optical conductor and a coupling  
optic.

Claim 21 (currently amended): Internal combustion engine according to claim 20,  
~~characterized in that~~ wherein the optical conductor is flexible.

Claim 22 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the laser light source comprises one of the group  
consisting of an actively and a passively Q switched laser.

Claim 23 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the wavelength of the laser light lies above 400 nm.

Claim 24 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the wavelength of the laser light lies above 1000 nm.

Claim 25 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the pulse duration of a laser light pulse lies between 1 ns  
and 100 ns.

Claim 26 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the pulse duration of a laser light pulse lies between 5 ns  
and 50 ns.

Claim 27 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the optical transmission apparatus comprises flexible  
optical conductors.

Claim 28 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein at least two laser light sources are provided for every  
cylinder.

Claim 29 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein the coupling optic has a combustion chamber window and outside the combustion chamber a lens or a lens arrangement for the focussing of laser light through the combustion chamber window into the combustion chamber.

Claim 30 (currently amended): Internal combustion engine according to claim 29, ~~characterized in that~~ wherein the coupling optic has a combustion chamber window made of sapphire.

Claim 31 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein the combustion chamber window of the coupling optic is itself developed as a lens.

Claim 32 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein one of the group consisting of an electronic engine-control and an engine-regulating device is provided which, according to recorded engine parameters, triggers the laser light source(s) and in so doing establishes laser light parameters.

Claim 33 (currently amended): Internal combustion engine according to claim 32, ~~characterized in that~~ wherein the recorded engine parameters are at least one of the group consisting of the crankshaft angle and the speed and the engine power and the current cylinder pressure in the combustion chamber.

Claim 34 (currently amended): Internal combustion engine according to claim 32, ~~characterized in that~~ wherein the laser light parameters are at least one of the group consisting of the chronological sequence and the pulse duration and the ignition energy.

Claim 35 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein one of the group consisting of an electronic engine-control and an engine-regulating device is provided which controls or adjusts the ignition energy of at least a second laser light pulse(s) during the same working cycle of a cylinder, according to current cylinder pressure after the first laser light pulse.

Claim 36 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein the fuel/air mixture is ignited by at least two chronologically successive laser light pulses per working cycle of a cylinder.

Claim 37 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein one of the group consisting of an electronic engine-control and an engine-regulating device is provided which at the start of a working cycle establishes the air/fuel ratio, according to recorded engine parameters of at the directly preceding working cycle.

Claim 38 (currently amended): Internal combustion engine according to claim 37, ~~characterized in that~~ wherein the recorded engine parameters are the cylinder pressures.

Claim 39 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the geometric compression ratio can be varied.

Claim 40 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the geometric compression ratio can be varied by an  
alternating piston.

Claim 41 (currently amended): Internal combustion engine according to claim 1  
~~characterized in that~~ wherein the geometric compression ratio can be varied by  
swivelling the crankshaft.

Claim 42 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the geometric compression ratio can be varied by a  
changing of the distance between the middle of the piston pin and the upper edge of  
the piston.

Claim 43 (currently amended): Internal combustion engine according to claim 1,  
~~characterized in that~~ wherein the geometric compression ratio can be varied by a  
pressure-dependent changing of the distance between the middle of the piston pin and  
the upper edge of the piston.



Claim 44 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein, after a pre-determined number of working cycles, a laser light pulse is emitted into the combustion chamber which is not filled with fuel/air mixture.

Claim 45 (currently amended): Internal combustion engine according to claim 1, ~~characterized in that~~ wherein during the starting process of the internal combustion engine a laser light pulse is emitted into the combustion chamber which is not filled with fuel/air mixture.